
U.S. TRADE AND DEVELOPMENT AGENCY



EXECUTIVE SUMMARY

Middle Bosnia and Tuzla Coal Mines January 2000

U.S. Firm: Marston & Marston
Main Contact Name: Mr. Bill Meister
Current Phone: 314-984-8800

Project Sponsor: Federal Ministry of Energy Mining Industry
Main Contact Name: Minister Mirsad Salleic
Current Phone: 387-88-580018
Fax: 387-88-580015

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1.0 INTRODUCTION

From 1945 until 1992, Bosnia and Herzegovina (Bosnia) was one of six republics within the Socialist Federal Republic of Yugoslavia (Yugoslavia). Three other former republics, Slovenia, Croatia, and Macedonia, declared their independence and seceded from Yugoslavia in 1991. Bosnia followed suit in early 1992, triggering years of intense fighting that finally ended in December 1995 with the signing of the Dayton Peace Agreement (Agreement). This agreement not only ushered in a period of extensive donor-sponsored rebuilding, but also divided Bosnia into two separate entities: the Federation of Bosnia and Herzegovina (Federation) and the Serbian Republic, or Republika Srpska (RS).

Rebuilding of the energy sector was one of the primary goals during this period, since economical energy is vital both for the war rebuilding process itself, as well as for easing the transition to a market economy. The electrical generation, transmission and distribution systems, which had been devastated by the war, are critical components of the energy sector, and were one of the highest priorities in the rebuilding process,

Bosnia has extensive brown coal and lignite deposits, as well as mountainous terrain and ample rainfall. Therefore, Bosnia utilizes a blend of both thermal and hydroelectric power plants for the generation of economical electricity.

Numerous surface and underground coal and lignite mines are scattered throughout both Bosnia as well as the Federation. Many of these mines, particularly those clustered in the Middle Bosnia and Tuzla areas, respectively, provide fuel for the Federation's two thermal power plants (TPP), the TPP Kakanj and the TPP Tuzla, which are both operated by JP Elektroprivreda Bosna i Hercegovina (EPBiH). See Figure 1.1, Project Location Map. Middle Bosnia mining companies and their current operations include: Kakanj Mining Enterprise, with the Vrtliste surface mine and the Stara Jama and Haljinici underground mines; Breza Mining Enterprise with the Sretno and Kamenice underground mines; Zenica Mining Enterprise with the Stara Jama, Raspotocje and Stranjani underground mines; and, Abid Lolic-Bila Mining Enterprise with the Grahovcici underground and surface mines. Tuzla mining operations include; Kreka-Durdevik Mining Enterprise with the Sikulje and Dubrave surface lignite mines, the Mramor and Bukinje underground lignite mines, the Visca 11 and Potocari surface brown coal

mines, and the Durdevik underground brown coal mine; and, Banovici Mining Enterprise with the Cubric, Grivice and idle Turija surface mines, and the Omazici underground mine. Other Federation coal mines include the Gracanica Mining Enterprise with the Dimnjace surface mine, as well as the Mostar, Tusnica-Livno and Kamengrad-Sanski Most Mining Enterprises.

The cost of fuel is a tremendously large percentage of the cost of generating electricity at thermal power plants. Consequently, improving and modernizing the coal mines that provide the fuel is critical to providing economical energy to fuel sustainable economic growth. The Federation's Ministry of Energy, Mining and Industry, funded by a grant from the United States Trade and Development Agency (JDA), retained Marston & Marston, Inc. (Marston) to perform a feasibility study for the rehabilitation, restructuring and modernization of the Middle Bosnia and Tuzla coal mines.

The objective of this Study was to produce a technical and economic analysis of the various coal mines within the Federation. The Study's primary goal was to select the mines that currently are, or have the capability of becoming, profitable at a coal price, delivered to the power plants, of DM4.00/GJ. These mines are identified in this Study, and recommendations regarding management and organization restructuring are included. Those mines that do not appear to have the capability of becoming profitable are also identified in this report, along with recommendations for their temporary or permanent closure.

For those mines that either are, or have the capability of becoming profitable, Marston investigated numerous opportunities for rehabilitation and cost reduction, primarily through improvements in operating methods and efficiency, and through capital investments. Marston reviewed numerous capital investments, both those proposed by local mine management as well as those that resulted from rehabilitation and enhancements suggested during this Study. Those capital investments that would stimulate sustainable development for a mine's remaining economic life were evaluated and, if they met reasonable economic returns-on-investments or were critical for the continuation of operations, were incorporated into the proposed future operating plans.

The following 13 tasks were identified in the original request for proposals, and have subsequently been addressed in this Study:

1. Project Initiation.
2. Review of Existing Mine Operations, Including Environmental Impacts.
3. Analysis of Local Coal Markets.
4. Analysis of Mining Methods and Mine Plan Optimization.
5. Coal Resource Estimation.
6. Equipment Definition and Tender Document Preparation.
7. Coal Processing Studies.
8. Infrastructure and Environmental Improvements.
9. Proposed Restructuring for Coal Mining Companies.
10. Capital and Mine Operating Cost Requirements.
11. Economic Evaluation.
12. Recommendations for Mine Closure, Including Safety and Environmental Issues.
13. Final Report Preparation.

The U. S. Department of Labor conducted a separate, but parallel, study on the socio-economic impacts of the resultant displaced workers identified in this report at both the restructured operations and those recommended for closure.

Marston personnel visited each of the active mining operations within the Middle Bosnia and Tuzla groupings of mines, as well as Gracanica. At each of these operations, Marston met with and questioned the Director and Technical Director, as well as other operational and financial personnel. Detailed technical and financial information regarding both historical and projected operating, financial, technical and market information was requested from each of the mining operations. In addition, Marston personnel visited and met with the Director of Generation of EPBiH, as well as the Director, technical and operating staff at both of the TPPs.

Marston performed this Study with the support and involvement of selected members of the Faculty of Mining and Geology of Tuzla University, under the guidance and direction of Dr. Abdulah Zlatan Basic, Department Manager (RGGF Tuz1a, Univerzitetska 2, 75000 Tuzla, Bosnia and Herzegovina).